

Recent Liberations of Beneficial Insects in Hawaii—IV

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BOARD OF AGRICULTURE AND FORESTRY
HONOLULU, HAWAII

The following liberations of beneficial insects have been made or have escaped notice since the last listing was published.¹

Introductions by the Board of Agriculture and Forestry

Apanteles sp.

A braconid of this genus was introduced from Trinidad for the control of the bean pod borer, *Maruca testulalis* (Geyer). It was liberated at Waialua, Oahu, on February 9, 1954.

Aphytis spp.

Two strains of aphelinid wasps parasitizing olive scale, latania scale, and others were introduced from the University of California laboratory at Albany to attack scales here. These were designated as the "B" and "Iraqi" strains, and were released in Foster Garden, Oahu, on June 9 and 12, 1952, respectively.

Azya trinitatis Marshall

Pentilia insidiosa Mulsant

These coccinellids were introduced from Trinidad as predators on the bamboo and other scales. They were released in Makiki, Oahu, on February 12, 1954.

Teleonemia sp.

Teleonemia scrupulosa Stål

Teleonemia vanduzeei Drake

Blepharomastix acutangulalis (Snellen)

Diastema tigris Guénée

Octotoma scabripennis Guérin

Octotoma sp., probably *plicatula* (F.)

These insects were introduced for the control of *Lantana camara*, a weed pest of Hawaiian ranges. The first three are tingid bugs which suck plant juices from the leaves. The first was introduced from Brazil and was liberated at Holualoa, Hawaii, on July 8, 1954; a strain of *scrupulosa*, a species already present in Hawaii, was brought from British Honduras for possible greater effect on the plants or adaptability to climatic zones;

¹ The previous paper in this series appeared in the "PROCEEDINGS," 15 (2): 369-370, 1954.

this was released at Koana, Molokai, on March 16, 1954; at Koloa, Kauai, on March 24, and Holualoa, Hawaii, on June 10. Another strain of *scrupulosa* was brought from Trinidad and released at Haiku, Maui, on May 25, 1954; Puhi, Kauai, on June 1; Pahala, Hawaii, on June 8; Pukoo, Molokai, on June 9; and Waimanalo, Oahu, on June 23. *Teleonemia vanduzeei* was introduced from Cuba and first released in 1952; another strain was brought from Florida in 1954; further releases were made at Koana, Molokai, on March 16, 1954 and Wailua, Kauai, on July 21. The record of liberation at Hookena ("PROCEEDINGS," 15:129, 1953) should be corrected to read Hoomaha on July 16.

Blepharomastix is a pyralid moth introduced from Mexico in 1953 which feeds on the leaves. The first release on Kauai was made at Koloa on May 19, 1954 and at Molokai Ranch, Molokai, on June 23.

The phalaenid moth *Diastema* was brought from the Canal Zone in 1954; it also feeds on the leaves. It was first liberated at Kaupo, Maui, on July 29; Mahaulepu, Kauai, on August 10; and Waimanalo, Oahu and Holualoa, Hawaii, on August 20.

Octotoma scabripennis is a chrysomelid beetle whose larvae mine the leaves. It was introduced from Mexico in 1953. The first release on Hawaii was made at Hookena on May 16, 1954. *Octotoma* sp. was found in Honduras and released in Kona, Hawaii, on May 16.

Brachymeria sp.

Horogenes sp.

Horogenes insularis (Cresson)

Tetrastichus sp. near *sokolowskii* Kurjudmov

These parasites were brought from Kenya in 1953 to attack the diamond-back cabbage moth, *Plutella maculipennis* Curtis. *Brachymeria* was first released on Maui at Kula on March 31, 1954 and at Kaumakani, Kauai, on April 14. *Horogenes* sp. was liberated at Puhi, Kauai, on May 4; Olinda, Maui, on May 5; and Kapoho, Hawaii, on May 11. *Horogenes insularis* was released at Kilauea, Hawaii, on March 29; Kula, Maui, on March 31; and Kaumakani, Kauai, on April 6. This species was already present in Hawaii. *Tetrastichus* was liberated at Waimea, Kauai, on June 15, 1953 and at Kula, Maui, on July 8.

Calosoma peregrinator Guérin

This carabid beetle was introduced from Arizona to attack cutworms and armyworms. It was released at Naalehu, Hawaii, on September 27, 1954.

Canthon chevrolati Harold

Phanaeus daphnis Harold

These dung beetles were introduced from Mexico to help in control of hornfly and other flies breeding in dung. They were released on the Parker Ranch on Hawaii on October 25, 1954.

Hippodamia quinquesignata punctulata Le Conte

Introduced from California in 1952, this aphid predator was also liberated at Paauhau, Hawaii, on June 3, 1952, and at Waiakoa, Maui on June 6.

Hyperaspis albicollis Gorham

This mealybug predator was introduced from the Canal Zone. It was liberated at Maunawili, Oahu, on January 18, 1954. Previous introductions had been made in 1924 and 1946.

Lamprophorus tenebrosus (Walker)

The larvae of this lampyrid glowworm are predacious on snails and slugs, and were introduced from Ceylon to combat the giant African snail. The first release was made at Kokokahi, Oahu, on July 20, 1954.

Hololepta spp.

Two species of this histerid genus (referred to as *Leionota* sp., "PROCEEDINGS," 15: 370, 1954) were brought from Trinidad in 1953 to feed on scarab and other coleopterous larvae. Further releases were made on Parker Ranch, Hawaii, at Haiku, Maui, and Kapaa, Kauai, on February 9, 1954.

Macrocentrus ancylivorus Rohwer

This braconid parasite of lepidoptera was obtained from the University of California laboratory at Albany. Releases were made at Kula, Maui, on February 5, 1951 and Kapoho, Hawaii, on February 6. A later shipment was received from the U. S. Department of Agriculture laboratory at Moorestown, New Jersey. These were released at Waimano Home, Oahu, on June 5, 1952; Kapoho, Hawaii, and Paia, Maui, on June 6.

Introductions by the Board of Health

Toxorhynchites brevipalpis Theobald**Toxorhynchites splendens** (Wiedemann)

These mosquitoes were introduced by the Board of Health from South Africa and the Philippine Islands as predators on the forest day mosquito, *Aedes albopictus* Skuse. Records of the first liberation on each island were kindly furnished through the courtesy of Dr. Stephen M. K. Hu, Chief of the Bureau of Mosquito Control.

T. brevipalpis was first released in Nuuanu Valley, Oahu, on December 7, 1950; Wailua River, Kauai, on June 15, 1954; Wailuku River, Hawaii, on July 1; Iao Valley, Maui, on September 14; and Papio Valley, Molokai, on September 16. *T. splendens* was liberated on Tantalus, Oahu, on March 9, 1954; Wailua River, Kauai, on June 15; Wailuku River, Hawaii, on July 1; Iao Valley, Maui, on September 14; and Papio Valley, Molokai, on September 16.

Continuous liberations of *brevipalpis* adults were made on the east side of Manoa Valley, Oahu, commencing March 3, 1954. On July 21, larvae

and pupae were found in 12 of 63 broken bamboo stems, while one adult female was recovered. On Tantalus, continuous liberations of *splendens* at the head of the valley were begun on March 23. On July 19 one second stage and one fourth stage larva were found in discarded automobile tires, while a recently emerged male was seen. On August 3, second stage larvae were seen in beer cans nailed to the trees and in the bases of ape (*Xanthosoma roseum*) leaves. One tire contained eggs and a second a fourth stage larva, with a second stage larva being found in a bucket. On October 13, 12 larvae and 1 pupa were found in the beer cans.

Introductions by the Pineapple Research Institute

***Pseudaphycus angelicus* (Howard)**

This encyrtid parasite of species of *Pseudococcus* was introduced from the Commonwealth Institute of Biological Control laboratory at Fontana, California, to attack the pineapple mealybug, *P. brevipes* (Cockerell). Liberation records were supplied through the courtesy of Dr. Walter Carter. The initial release on Oahu was made near Haleiwa in July, 1954; below Lanai City, Lanai, in August; and at Haliimaile, Maui, in December.